

REMARKS

Responsive to the Final Office Action dated April 15, 2004, Applicant hereby makes the following response. Claims 1-44 are currently pending in this application. In the Amendment, Applicant has amended Claims 1, 8, 15, 23, 26 and 27 and has canceled Claims 4, 11 and 18. Accordingly, Claims 1-3, 5-10, 12-17, and 19-44 remain pending for prosecution with Claims 1, 8, 15, and 23 being independent.

Applicant appreciates the withdrawal of the rejection of Claims 1-3, 8-10 and 15-17 under the judicially created doctrine of double patenting over Claims 1, 26 and 27 of copending Application No. 09/862,621 in view of U.S. Patent No. 5,518,839 to Olsen. Applicant appreciates the withdrawal of the rejection of Claims 1-21 under 35 U.S.C. 103(a) over U.S. Patent No. 6,350,546 to Gan et al. in view of U.S. Patent No. 5,472,808 to Peled et al.. Finally, Applicant appreciates the withdrawal of the rejection under 35 U.S.C. 103(a) over U.S. Patent No. 6,350,546 to Gan et al. in view of U.S. Patent No. 6,503,657 to Takami et al..

I. Summary of the Claims

Independent Claim 1, as amended, recites a battery comprising a positive electrode and a negative electrode having a collector layer selected from the group consisting of a foil including a metal wherein the metal is not copper and does not form an alloy with lithium, and a copper foil covering the metal. Claim 1 also recites an electrolyte including a polymer compound selected from the group consisting of radically-polymerized monofunctional monomers, multifunctional monomers, and mixtures thereof wherein the polymer compound is synthesized by polymerization at 95°C or lower.

Independent Claim 8, as amended, recites a battery comprising a positive electrode, a separator, and a negative electrode having a collector layer selected from the group consisting of

a foil including a metal wherein the metal is not copper and does not form an alloy with lithium, and a copper foil covering the metal. Claim 8 also recites an electrolyte including a polymer compound selected from the group consisting of radically-polymerized monofunctional monomers, multifunctional monomers, and mixtures thereof wherein the polymer compound is synthesized by polymerization at 95°C or lower.

Independent Claim 15, as amended, recites a battery comprising a battery device including a positive electrode, a negative electrode, an electrolyte, and a package member enclosing the battery device. The negative electrode has a collector layer selected from the group consisting of a foil including a metal wherein the metal is not copper and does not form an alloy with lithium, and a copper foil covering the metal. Claim 15 also recites an electrolyte including a polymer compound selected from the group consisting of radically-polymerized monofunctional monomers, multifunctional monomers, and mixtures thereof wherein the polymer compound is synthesized by polymerization at 95°C or lower.

Independent Claim 23, as amended, recites a battery comprising a positive electrode, a negative electrode, and an electrolyte wherein an electrolyte wherein the electrolyte includes a polymer compound synthesized by polymerization of radically-polymerized monofunctional monomers at 95°C or lower.

II. The Disclosure Objection

The disclosure was objected to because vanadium oxide was erroneously categorized as a metal sulfide at page 5, line 10 of the disclosure. Applicant has amended the disclosure to correctly categorize vanadium oxide as a compound soluble in metal sulfides. Accordingly, Applicant respectfully requests withdrawal of this objection.

III. Claim Interpretation

Applicant accepts the Examiner's interpretation of the term "foil."

IV. The 35 U.S.C. § 112 Rejection

Claim 27 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, Claim 27 was rejected because it erroneously categorized vanadium oxide as a metal sulfide. Applicant has amended Claims 26 and 27 to correct this error.

V. The 35 U.S.C. § 102(e) Rejections

A. Rejection of Claims 23-27, 42 and 44 over Skotheim

Claims 23-27, 42 and 44 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,482,545 to Skotheim et al.. For the following reasons, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Applicant respectfully submits that Skotheim does not anticipate Applicant's invention as claimed because Skotheim fails to disclose every elements limitation of the claims at issue. In particular, Skotheim teaches that the initiation temperature to induce rapid polymerization is greater than 100°C and, more preferably, between 100-200°C. In the present invention, however, the polymer compounds used in the electrolyte are synthesized by polymerization at 95°C or lower in order to increase initial discharge capacity, charge/discharge effectiveness and capacity/maintenance ratio. Claim 23 has been amended to more clearly set forth this feature of the present invention. Accordingly, Claim 23 and the claims depending therefrom are not anticipated by Skotheim because this reference fails to teach every element and limitation of these claims.

B. Rejection of Claims 23-26, 28, 31-33 and 42-44 over Ochiai

Claims 23-26, 28, 31-33 and 42-44 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,569,572 to Ochiai et al.. For the following reasons, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Applicant respectfully submits that Ochiai does not anticipate Applicant's invention as claimed because Ochiai fails to disclose every element and limitation of the claims at issue. In the Ochiai reference, the di(metha)-acrylate polymer used in the electrolyte may be a single polymer or a copolymer of two or more kinds of di(metha)-acrylic esters, or a copolymer of di(metha)-acrylic esters with other monomers. However, polymerization of the di(metha)-acrylic ester monomers does not occur within the battery itself. Rather, polymerization occurs prior to impregnating the battery with the electrolyte gel. On the other hand, the multifunctional monomers used in the present invention are radically polymerized by heating after the electrolyte has been injected into the battery. Claim 23 has been amended to more clearly set forth this feature. Accordingly, Claim 23 and the claims depending therefrom are not anticipated by Ochiai because this reference fails to teach every element and limitation of these claims.

VI. The 35 U.S.C. § 103(a) Rejections

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

With respect to objective evidence of nonobviousness, Applicant submits that the record supports the conclusion that there are long-felt but unsolved needs met by the present invention. The present invention is directed to the particular problem of providing a new and improved polymeric gel composition that is both aesthetically-pleasing and functionally-appropriate for a variety of applications including deodorizing gels, insect repelling gels, and the like. In particular, the present invention meets the existing need for a clear gel composition that remains clear, even after the addition of hydrophobic liquids such as perfumes, insecticides, and the like.

A. Rejection of Claims 1-21 over Nakanishi in view of Skotheim

Claims 1-21 have been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,692,863 to Nakanishi et al. in view of U.S. Patent No. 6,482,545 to Skotheim et al.. For the following reasons, Applicant respectfully submits that the present invention is not obvious under 35 U.S.C. § 103(a) and requests reconsideration and withdrawal of this § 103(a) rejection.

Nakanishi does not teach or suggest the claimed invention. It is admitted in the Office Action that Nakanishi is silent as to the electrolyte containing multifunctional monomers or synthesizing the polymer at 95°C or lower. As discussed above in connection with the § 102(e) rejection over Skotheim, that patent also does not teach radical polymerization at temperatures of 95°C or lower. Moreover, there is no teaching, suggestion, or motivation in Nakanishi to use the multifunctional monomers of Skotheim in the electrolyte of Nakanishi.

Prima facie obviousness requires that there must be a reasonable expectation of success when prior art is modified or combined. In the present application, there is no reasonable expectation of success in achieving the present invention as claimed when the cited references are combined. As discussed above, Nakanishi does not contain all the elements of independent Claims 1, 8 and 15 nor does Skotheim. Unless all the elements are taught by the reference, there

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can be no success in modifying them. Accordingly, independent Claims 1, 8 and 15 and the claims depending therefrom are nonobvious under 35 U.S.C. § 103(a).

B. Rejection of Claim 22 over Nakanishi in view of Skotheim in further view of Takami

Claim 22 has been rejected under 35 U.S.C. § 103(a) as obvious over Nakanishi in view of Skotheim and further in view of U.S. Patent No. 6,503,657 to Takami et al.. For the following reasons, Applicant respectfully submits that the present invention is not obvious under 35 U.S.C. § 103(a) and requests reconsideration and withdrawal of this § 103(a) rejection.

As discussed above, there is no teaching or suggestion in Nakanishi, Skotheim or a combination thereof to utilize a polymer compound synthesized from radically-polymerized multifunctional monomers wherein the polymer compound synthesis occurs at 95°C or lower. Similarly, there is no teaching in Takami of this element of Applicant's independent Claim 1. Thus, there is no teaching or suggestion at all of the present invention as claimed in independent Claim 15 as well as its dependent Claim 22.

Turning to the Takami reference, Takami also does not teach or suggest a battery having an electrolyte containing radically-polymerized mono- or multi-functional monomers. Because Claim 22 depends from Claim 15 which includes this limitation, Takami cannot be said to teach the present invention as claimed in Claim 22.

Prima facie obviousness requires that there must be a reasonable expectation of success when prior art is modified or combined. In the present application, there is no reasonable expectation of success in achieving the present invention as claimed when the cited references are combined. Unless all the elements are taught by the reference, there can be no success in modifying them. Accordingly, Claim 22 is nonobvious under 35 U.S.C. § 103(a).

C. Rejection of Claims 29 and 30 over Ochiai in view of Nakanishi

Claims 29 and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ochiai, as applied to Claim 23 above, and further in view of Nakanishi. For the following reasons, Applicant respectfully requests reconsideration and withdrawal of this rejection.

As discussed above in connection with the § 102(e) rejection over Ochiai, this reference does not utilize radically-polymerized multifunctional monomers polymerized at a temperature of 95°C or lower and there is also no teaching or suggestion of their use in Nakanishi. Prima facie obviousness requires that there must be a reasonable expectation of success when prior art is modified or combined. In the present application, there is no reasonable expectation of success in achieving the present invention as claimed when the cited references are combined. Unless all the elements are taught by the reference, there can be no success in modifying them. Accordingly, Claims 29 and 30 are nonobvious under 35 U.S.C. § 103(a).

VII. Conclusion

Applicant respectfully requests withdrawal of the rejections and believes that the claims as presented represent allowable subject matter. However, if the Examiner desires, the applicant is ready for a telephone interview to expedite prosecution. As always, the Examiner is free to call the undersigned at 816.460.2516. Should any fees be necessitated by this response, the Commissioner is hereby authorized to deduct any such fees from Deposit Account No. 19-3140.

Respectfully submitted,
SONNENSCHEIN NATH & ROSENTHAL LLP

By



Lara Dickey Lewis, Reg. No. 48,161
P.O. Box 061080
Wacker Drive Station, Sears Tower
Chicago, IL 60606-1080
816-460-2516 (telephone)
816-531-7545 (facsimile)

ATTORNEYS FOR APPLICANT